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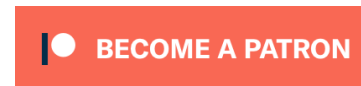
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# HOW TO INSTRUCT IN AIMING AND FIRING

GIVING EXPLANATIONS AND REASONS  
AS TAUGHT AT  
THE SCHOOL OF MUSKETRY, HYTHE.

---

BY  
SERGT.-MAJOR J. BOSTOCK,  
SCHOOL OF MUSKETRY, HYTHE.

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ELEVENTH EDITION.

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## HOW TO INSTRUCT

### IN

## AIMING AND FIRING.

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*A. J. Wadman.*  
*Army Service Corps.*  
*1914*



**NOTES ON  
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AND  
JUDGING DISTANCE**  
**In Relation to Musketry.**

Compiled by  
SERGT.-MAJOR J. BOSTOCK,  
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1914

## PREFACE.

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It is hoped that these notes may be of some assistance to those who desire to follow a uniform system in the training of recruits.

They shew in some detail the methods by which effect is given, at the School of Musketry, Hythe, to the instructions laid down in pages 83 to 105, Musketry Regulations, Part I., 1912, a thorough knowledge of which is essential for all non-commissioned officers.

The squad instructor should bear in mind from the first day the end aimed at in the musketry training of the private soldier, viz. :—

- (1) Proficiency in discerning the smallest targets.
- (2) Proficiency in judging distance at decisive ranges.



- (3) Accuracy in snap shooting at close range, with roughly calculated allowance for wind or movement.
- (4) Rapid recognition of difficult targets, indicated to him by his fire unit commander at all ranges.
- (5) Sufficient accuracy of fire to keep his shots within the normal grouping for all distances (see Plate 16, Musketry Regulations).

In addition he requires to have confidence in himself and his rifle, determination to hit, and knowledge of the principles of mutual support.

At an early stage of training, soldiers should be accustomed to work in pairs for mutual assistance in shooting and movement.

THE EFFICIENCY OF AN INSTRUCTOR  
DEPENDS MAINLY ON :

1. The clearness and brevity of his explanations.
2. His ability to instantly assume the correct position to demonstrate his explanation.
3. His ability to quickly detect and correct faults.
4. His power of grasping the different natures and peculiarities of his men.
5. The amount of work got out of the men.

This Edition has been thoroughly revised and brought up to date with latest Regulations.

J. B.

*September, 1914.*

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Ground ... .. 136, 137HOW TO INSTRUCT IN AIMING  
AND FIRING.

## AIMING INSTRUCTION.

The sights of all rifles used in aiming instruction should be in perfect order, and the instructor should ascertain that the slide of the backsight rests correctly at the 200 yards graduation before commencing instruction.

The System of instruction employed is as follows :—

- (a) Illustration.
- (b) Explanation.
- (c) Imitation.
- (d) Examination.

Section 36, Musketry Regulations, Part I., 1912, enumerates the various stages in which aiming instruction should be given. These may be conveniently divided into three groups so as to form a progressive sequence of Instruction.

The headings of the stages are briefly summarised here, the detailed instructions for each are dealt with later.

## SUMMARISED SEQUENCE OF INSTRUCTION IN AIMING.

### FIRST, OR ELEMENTARY STAGE.

Object—*Absolute Accuracy.*

Special Aiming Target used. Plate 29 M.R., Part II. Aim laid from an aiming rest Not over 100 yards.

### 1.—Sights.

Reasons for sights on barrel.  
Graduations (right of leaf only).  
Method of adjusting.  
Practice.  
Check.

### 2.—Accuracy of Aim.

Method of using sights—*i.e.* Rules.  
Illustrated by diagrams.

Correct aim shown—Le Gret Aim Teacher.

Practice.

Common faults explained as they occur, shown by means of Le Gret Aim Teacher, or paper near muzzle.

Backward men shown correct aim in stages with Le Gret.

Reasons for 6 o'clock aim explained.



Reasons given for use of full, or Service, sight.

Test for accuracy and consistency.  
Triangle of error.

3.—Aiming off for Wind.

Necessity for aiming off.

The Service method.

Method of keeping elevation, diagrams.

Aim laid showing method.

Practice.

Method of judging feet by comparison with target.

Fatigue man shows correct point of aim.

Description of various winds.

4.—Windgauge.

Method of adjusting.

No calculations to be taught.

Purely of instructional value.

Practice.

Test.

SECOND, OR ADVANCED STAGE.

Object—To retain *accuracy* and introduce *quickness*.

Aiming rest and tripod used where possible.

Figure Targets used. Ranges under 600 yards.

1.—Accuracy of Aim.

Correct aim shown.

Practice.

Test.

2.—Elevation Table.

Explanation of vertical rises obtained by raising leaf of backsight.

Use of table taught with full size targets, spotting discs and cardboard sights.

Method of working out larger differences explained.

### 3.—Aiming off for Wind.

Effect of various winds on bullet at 500 and 300 yards.

Unit of 1 foot shown at various distances up to 600 yards.

Practice in aiming off, judging feet at actual distances.

Judging allowance for various winds.

Correct point of aim shown by fatigue men with discs.

### 4.—Accuracy and Rapidity of Aim.

First taught with aiming disc.

Time saved in coming to the aiming position and quickness of aim.

Quickness not obtained at expense of accurate trigger release.

Practice.

Tested with aiming disc.

### 5.—Aiming off for Movement.

Necessity for explained.

Mechanical movement of rifle taught under 100 yards.

Aim Corrector used.

Practice.

Table of allowances for movement.

### THIRD, OR FINAL STAGE.

Object—to retain *accuracy* and *quickness*, at difficult and Service targets at all ranges.

#### 1.—Accuracy of Aim.

At silhouette figures, then at men in Service positions up to 600 yards.



2.—Aiming off for Wind.

At silhouette figures, then at men in Service positions up to 600 yards.

Tested with aiming rest at men.

3.—Aiming at Ground.

At natural objects up to 600 yards.

Marking down an enemy.

Aiming at ground described verbally.

4.—Accuracy and Rapidity of Aim.

Snap-shooting at vanishing targets at actual distances.

Early lessons short distances, exposures long.

Later lessons up to 300 yards, shorter exposures and targets appear in different place each time.

5.—Aiming off for Movement.

Snap-shooting at moving targets at actual distances.

Aim corrector use to check at slow moving targets.

Test of elementary training with aim corrector.

6.—Aiming up and down.

Object explained—To avoid necessity of making petty alterations of sights.

Practised at fatiguesmen or vanishing targets at various ranges.

Limited to 3 feet above or below regulation point of aim.

7.—Aiming at Ground over 600 yards (recognition).

Aiming at natural objects described verbally.

Test with aiming rest.

8.—Aiming off for Wind over 600 yards (recognition).

Men practised in carrying out instructions accurately.

Necessity for Officers and N.-C.-O.'s to know wind table.

Point of aim indicated :—

- (1). With reference to breadth of target.
- (2). With reference to intervals in a formation.
- (3). By use of an auxiliary aiming point.
- (4). (If above impossible) in yards or feet.

Fatigued man shows correct point of aim.

Aim corrector used to check at targets exposed for some time.

9.—Long Range Sights.

These should be shown but not taught in Stage 1.

Use of long range sights taught on the above principles as far as they apply.

May be worked in with former sequence as follows :—

1ST STAGE.

Explanation of sights and adjustment.

Accuracy of aim.

3RD STAGE.

Aiming at ground over 600 yards.

Aiming off for wind over 600 yards.

---



### ELEMENTARY STAGE IN DETAIL.

The Squad should be assembled in rear of an aiming rest and tripod in a semi-circle around the Instructor, who will make free use of his rifle, or diagrams to illustrate every point possible during instruction.

#### EXPLANATION AND ADJUSTMENT OF SIGHTS.

- (a) Explain that the sights are placed on the rifle to permit the firer to give the necessary elevation when aiming, and at the same time keep the object to be hit in view.

In explaining the trajectory to recruits, it is not alone sufficient to draw a diagram representing a trajectory distorted in respect of height and range, nor to throw any object to a distance as a practical illustration. It

is most desirable, in addition, to show the path of the bullet at various ranges, say 400 and 800 yards, by means of discs raised on poles at every 100 yards, or some similar device.

- (b) Explain the graduations marked on the leaf of the backsight, then demonstrate how the slide is adjusted to various distances. (The fine adjustment and wind-gauge to be explained later.)
- (c) Cause the men to adjust the slide until thoroughly proficient.

#### EXPLAIN THE RULES FOR AIMING IN DETAIL.

- (1) Backsight upright. The instructor places his rifle on the rest, illustrating the upright position of the sights, and afterwards the inclined posi-

tion, explaining that unless aim is taken with the backsight perfectly upright, the bullet will strike low, and to the side to which the sights are inclined. When the men have learned how to aim, this point may be easily demonstrated by aiming at 200 yards with the bolt out, sights upright; then cause the men to look through the bore. Repeat with sights inclined to an exaggerated degree. See Plate I.

- (2) Left or right eye closed. Explain that if the soldier aims with both eyes open, the sights, and object aimed at, are not so readily brought into focus. It is also found that objects moving across the front attract the eye not engaged in aiming.

## PLATE 1.

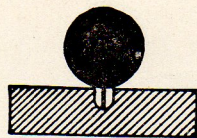
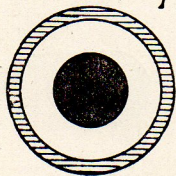
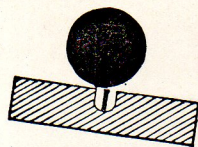
*Fig 1**Sights upright**Fig.2.**Sights upright - as seen through bore*

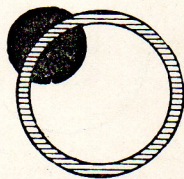


Fig 3



*Sights inclined*

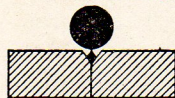
Fig 4



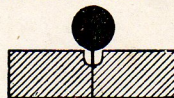
*Sights inclined as seen  
through Bore*

PLATE II.

Illustrating Correct and Incorrect Aims.



Correct.



Fine Sight.—  
A low shot.



Too Full.—  
A high shot.



Inaccurate  
centring.—  
A left shot.



Barleycorn  
Pattern.

Inaccurate  
centring.  
and too full.  
A high Right shot.



Blade  
Pattern.

- (3) How aim is taken. This is best taught by means of diagrams, as shewn on Plate II., or by using the Le Gret Aim Teacher.

THE REASONS FOR TAKING A  
FULL SIGHT ARE :—

- (a) The rifle is sighted at the factory for a full sight.
- (b) Facilitates rapidity of aim.
- (c) There is less tendency to vary the amount of foresight in the "V" or "U."

With Mark VI. Ammunition if a *medium* sight is taken the bullet will strike about three inches lower per 100 yards ; if a *fine* sight, about five inches.

With Mark VII. Ammunition the difference is four and seven inches respectively, per 100 yards of the range.

Incidentally, it is found to be easier to teach recruits to shoot with a full sight, and the aim can be quickly and correctly checked by the instructor, owing to the guide given by the shoulders of the V or U.

Reasons for 6 o'clock aim :—

- (1). Rifles so tested at the factory.
- (2). The whole mark is kept in view.
- (3). Better chance of hitting a vanishing target.
- (4). Better chance of hitting if distance is over-estimated.
- (5). Counteracts tendency to shoot high.
- (6). Assists close grouping in collective fire.

Correct Aim Shown.

At this point the instructor should



loosen the sling, adjust the sights for any given range, and take an *absolutely correct aim* from the rest, at the same time pointing out to his squad the correct position for the eye, *i.e.*, just above the heel of the butt. Aim can be taken from this point without touching the rifle with the cheek and disturbing the aim. It also marks a measured distance from the backsight.

It is essential that the eye should always be the same distance from the backsight, because the further the eye is back the lower will the aim appear, and *vice versa*. This is important in checking a man's aim, and instructors should be careful to view the sights from a point just above the heel of the butt.

The Le Gret should be used to illustrate the correct aim whenever possible.

The system of focussing the sights and mark requires explanation.

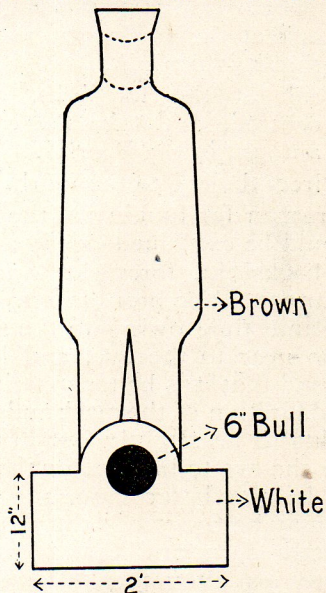
- (a) Look at the backsight and see that it is upright.
- (b) Look at the foresight, get it centred, and take the correct amount in the V or U.
- (c) Direct the eye to the mark.

The reason for looking at the mark last should be explained briefly :—

The backsight, foresight, and the mark cannot all be brought into focus at the same time owing to the sights being so near to the eye, and it has been found that it is better to strive for a crisp definition of the mark and allow the sights to be slightly out of focus than for the eye to be fixed on the foresight. In the latter case, the mark (which may be 600 yards away) is very indistinctly seen and the alignment frequently lost altogether.



PLATE III.  
Elementary Aiming Target.



This target is designed to inculcate the habit of a low point of aim being taken from the beginning of the soldier's training.



PLATE IV.

Illustrating the method of utilising a sandbag aiming rest to steady the head when aiming.

Note the correct position for the aiming eye, *i.e.* just above the heel of the butt.



This can be easily demonstrated by causing each recruit to raise his arm and align his thumb (as he would the foresight) on the mark. Then by focussing his eye on his thumb the mark is almost lost to view, whereas if the mark be looked at last the thumb can still be distinctly seen.

When a correct aim has been taken by the instructor he will cause each man to look along the sights and so get in his mind a photograph of what the correct aim looks like.

As each man views the instructor's aim he should be ordered to set his sights and aim from an aiming rest while the picture is fresh in his memory, the instructor correcting faults and explaining how each error made would affect the course of the bullet.

### COMMON FAULTS IN AIMING.

The most common faults made by men when aiming are:—

- (1) Taking too much or too little foresight.
- (2) Inaccurate centring of the foresight in the V or U.
- (3) Inclining the sights.
- (4) Focussing the foresight instead of the mark.

The difficulty experienced by recruits of keeping the head steady while aiming from a rest, may be overcome by placing a sandbag aiming rest in rear of the one supporting the rifle, so that the recruit may place his elbows upon it, and steady his head while aiming.

# BACKWARD MEN ARE SHOWN THE CORRECT AIM IN STAGES WITH THE LE GRET AIM TEACHER.

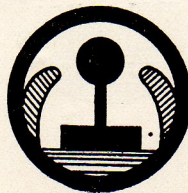
The latest device for use in aiming instruction is an instrument known as "The Aim Teacher." For recruits who have difficulty in aiming this apparatus should prove of great value. The instructions are as follows :—

The apparatus is attached to the butt of the rifle by placing the spring jaws over the small of the butt. The jaw with the hook on it should be on the right. The ends of the jaws are then brought together till the hook engages in the slot in the left hand jaw.

The apparatus is then drawn to the rear as far as it will go. The eye should be placed about  $1\frac{1}{2}$  inches from the aperture.

1. *To shew the proper relation between the foresight and the aiming mark.* Place the rifle in the aiming rest, and with the movable aperture to the right, arrange the jointed arm so that the aperture is roughly central and well clear of the backsight. Adjust the rifle in the rest so that the foresight is brought into correct relation with the aiming mark, *i.e.*, at 6 o'clock, the backsight not being used. Without moving the rifle or the aiming apparatus, stand clear and make the recruit look through the aperture, being careful that he does not derange the adjustment in any way.

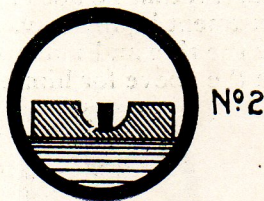
Move the rifle and make the recruit perform the above for himself.



Nº1

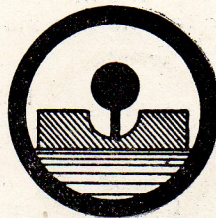


2. To shew the proper relation between the foresight and the backsight. With the rifle in the aiming rest, pointing at a white wall or other object which will allow the sights to be distinctly seen, and with the aperture to the right, adjust the jointed arm so that the foresight is in the correct relation to the backsight. Stand clear and make the recruit look through the aperture without deranging the adjustment.



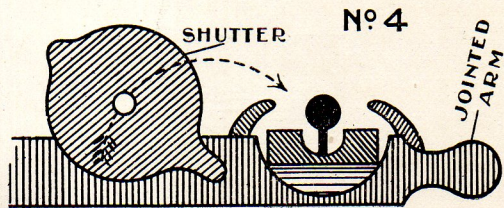
Nº 2

3. To shew the proper relation between the foresight, the backsight and the aiming mark. Be careful not to move the jointed arm when adjusted as in 2. Align the sights through the aperture on to an aiming mark. Stand clear and make the recruit inspect the aim through the aperture. Move the jointed arm and make the recruit follow the procedure first, as laid down in 2, then as in 3.



Nº 3

4. *To teach the recruit to aim with the fore and backsights and to check his aim by means of the aperture.* Adjust the rifle and the aperture as in 3. Then, being careful not to disturb the aiming apparatus in any way, move the rifle so that the sights are not on the mark, and turn the aperture gently over to the left. Make the recruit aim by means of the fore and backsights, and, when he has satisfied himself that he has aimed correctly, gently replace the aperture in the line of sight when any mistake that he has made will be apparent to him.



# NOTES.

(A) The utmost care must be taken that the jointed arm is not moved when once it has been placed in position, otherwise, the aperture will not check the aim correctly.

(B) It will be found impossible to determine by this means whether a man is taking the correct amount of foresight and aiming at a wrong place, or whether he is aiming at the right spot but taking too full or too fine a sight, or not centring in the U of the backsight. A study of his tendencies as revealed by the earlier practices with the aiming apparatus should, however, furnish a reliable guide to the cause of his mistakes.

The device can be used on the same lines as in 4, for teaching aiming up or down or aiming off.



## METHODS OF DEMONSTRATING FAULTS IN AIMING.

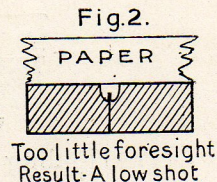
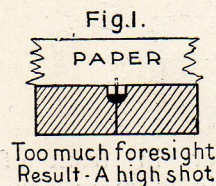
The following methods will be found useful for the purpose of demonstrating to men their faults in aiming:—

### (1) The straight edge Method.—

Cause the recruit to look along the sights with the head supported as in Plate IV. Then slowly lower the edge of a piece of paper or card to the upper edge of the cap of the backsight. If too much foresight has been taken, the recruit will observe that a portion of the foresight is obscured before the edge of the paper reaches the backsight

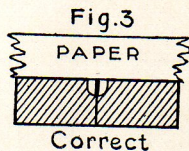
cap, as in Fig. 1 of the following diagram. In the event of too little foresight being taken, the sight will appear as in Fig. 2.

(The edge of a pocket knife blade may be used for this purpose.)



A small piece of card laid on the cap of the backsight and

held in position by an elastic band will answer the same purpose; it will also form a useful guide to the recruit in taking the correct amount of foresight. Fig. 3 illustrates the appearance of the sights when the correct amount is taken.



- (2) Holding paper in front of Muzzle.—(This is more convincing than (1) and will demonstrate almost any fault in aiming) The instructor holds a blank sheet of paper (an open pocket book serves the purpose) in

front of the recruit's rifle who has aimed inaccurately, then causes the recruit to look along the sights with his head supported as in Plate IV., making sure, by a movement of the *head* (not the rifle), that the foresight is correctly centred in the U or V of the backsight, and that the tip is in line with the shoulders. After a slight pause, the paper is quickly removed, bringing into view the mark aimed at; the error in aiming will be apparent to the recruit immediately the paper is removed, provided he has kept his head steady during the process. This forms a simple and convincing method of showing common errors and should be frequently applied during elementary instruction.



## TEST FOR ACCURACY AND CONSISTENCY.

### TRIANGLE OF ERROR.

Before proceeding further the ability of each soldier to aim correctly and consistently should be tested by means of the triangular system (see Musketry Regulations, Section 39), the instructor bearing in mind the following points:—

1. That a rest for the head is essential. This can be provided by placing a sandbag rest in rear of the rest upon which the rifle is placed. See Plate IV.
2. That it is intended as a test only, and is not to be frequently practised owing to strain on the eye.



PLATE V.  
The Ball Aiming Rest.

Suitable for aiming from a table at barrack room instruction, or out in the open.



3. That the distance, 10 yards, must be kept. It is thus quickly calculated how much would be the error at any range. For example, if a man makes an error of one inch at 10 yards the result at 500 yards will be an error of 4 feet 2 inches, due to faulty aiming alone, and he will miss the target.

Another reason for strictly keeping to the distance of 10 yards is that the standard of accuracy is set for that distance.

4. The position of the points in relation to the instructor's aim will expose any constant error in aiming. Their position with regard to one another will show inconsistency. A triangle which is formed with its longest side horizontally across





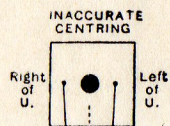
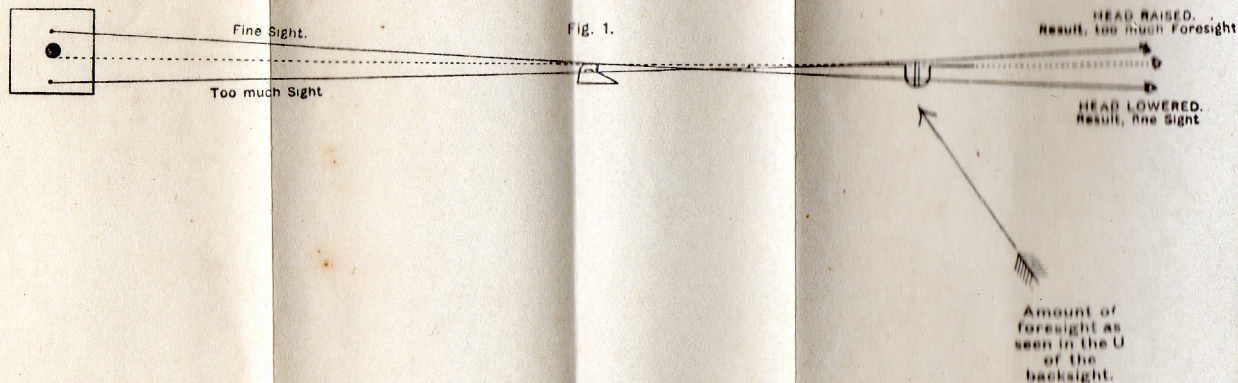
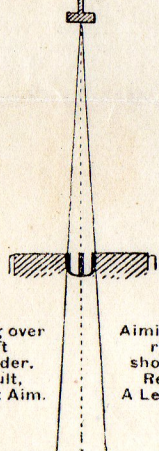


Fig. 2.



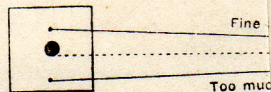
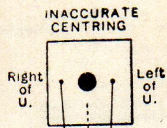
## PLATE VI.

Testing accuracy of aim by the Triangle of error method.

Fig. 1.—Illustrates how the line of sight is *below* that of the instructor, when *too full* a sight has been taken, and *above* if the sighting is *too fine*

Fig 2.—Illustrates the point of aim to the *right* of that of the instructor, when aim is taken over the *left* shoulder of the notch and *vice versa*.





VERTICALLY

the paper proves that the principal error is inaccurate centring of the foresight in the U or V; a vertical triangle proves that variations of foresight is the principal fault.

5. That the shots are reversed because it is the recruit's head which moves and not his rifle. (See Plate VI.)
6. When any one side of the triangle exceeds one-third of an inch, or the centre of the group is over one-third of an inch from the instructor's aim, the recruit should be noted for further instruction.



### AIMING OFF FOR WIND.

The windgauge is invaluable for elementary shooting when firing at stationary targets, with the wind steady, but for quickly changing objectives and unsteady winds, the most practical method is to aim off the mark.

Practice should be afforded in aiming off a bullseye, or full-length figure target according to the range.

In such exercises aiming rests are used, and a fatiguelman is employed at the target to indicate the correct point of aim with a marking disc after each aim taken by the recruit. This enables the instructor to check the men's aim and point out any errors.

The great difficulty experienced by firers when aiming off is to keep elevation. It should be explained to the men that this can be accomplished

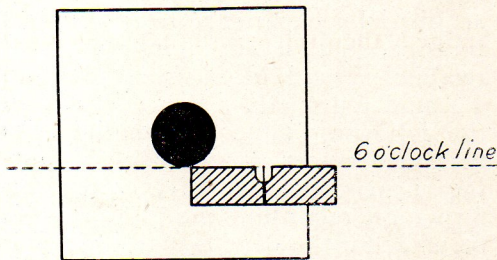
by keeping the aim on the six o'clock line, so that the bullseye or mark can be seen over the straight edge of the cap of the backsight, to the right or left of the U as shewn in Plate VII.

The allowance to be made to counteract the effect of wind on the flight of the bullet cannot be fully entered into here. It can only be acquired by experience from constant practice, but it is important that recruits should be assisted to form a sound judgment. For this reason the following table is compiled, so that instructors may consult it during instruction, and give correct information regarding the allowance to be made for the wind actually blowing at the time.

Recruits should be taught to discriminate between *mild*, *fresh*, and *strong* winds, by the effect which they

## PLATE VII.

How to keep elevation when aiming off the mark.



exercise on natural objects, and to note the direction, as front, rear, right angle, or oblique, by turning his face full towards the wind.

When indicating the *direction* of the wind, the most useful plan is to refer to the dial of a clock, the firer being in the centre. Having decided on the *direction*, the *strength* (i.e., Mild, Fresh, or Strong) should be judged, then refer to the table on next page for the allowance to be made.

---

\*A *Mild* Wind would be what is generally known as a gentle summer breeze.

A *Fresh* Wind. — One which would demand constant attention to prevent one's hat from blowing off.

A *Strong* Wind. — A most unpleasant wind equivalent to half-a-gale.



# WIND TABLE FOR INDIVIDUAL FIRE.

Approximate allowance in Inches on the Target, and Divisions on the Sights.

Direction.	Estimated Strength.	200 yds.		300 yds.		500 yds.		600 yds.	
		Inches	Div.	Inches	Div.	Inches	Div.	Inches	Div.
1, 5, 7, or 11 o'clock.	Mild 10 M. P. Hour		$\frac{1}{2}$	5	$\frac{1}{2}$	10	$\frac{1}{2}$	14	$\frac{1}{2}$
	Fresh 20 "	2	$\frac{1}{4}$	7	$\frac{1}{4}$	15	$\frac{1}{4}$	21	$\frac{1}{4}$
	Strong 30 "	4	$\frac{1}{8}$	9	$\frac{1}{8}$	20	$\frac{1}{8}$	28	$\frac{1}{8}$
2, 4, 8, or 10 o'clock.	Mild 10 M. P. Hour		$\frac{1}{2}$	10	$\frac{1}{2}$	20	$\frac{2}{3}$	28	$\frac{2}{3}$
	Fresh 20 "	4	$\frac{1}{4}$	15	$\frac{1}{4}$	30	1	42	$1\frac{1}{3}$
	Strong 30 "	8	$\frac{1}{8}$	20	$\frac{1}{8}$	40	$1\frac{1}{2}$	56	$1\frac{1}{2}$
3, or 9 o'clock.	Mild 10 M. P. Hour		$\frac{1}{2}$	15	$\frac{2}{3}$	30	1	42	$1\frac{1}{3}$
	Fresh 20 "	6	$\frac{1}{4}$	20	1	45	$1\frac{1}{2}$	63	$1\frac{1}{2}$
	Strong 30 "	12	1	25	$1\frac{1}{2}$	60	2	84	$2\frac{1}{2}$

To arrive at the allowance to be made at 800 yds., multiply the allowance given in the above table at 500 yds. by 3.

## USE OF THE WINDGAUGE.

The use of the windgauge should be explained, but instructors should emphasise that it is not to be regarded as the normal means of making allowance for wind under service conditions.

The instructor, having explained that a variation of one division on the windgauge scale is equivalent to 6 inches on the target per 100 yards of range, will tell the soldier how many feet of deflection allowance would be required for the wind which is blowing, and then direct him to set his sights for the range, adjust the windgauge, and aim from an aiming rest.

It is of no practical value to set recruits difficult problems in working out allowances for wind on the windgauge; it is sufficient to explain that

a ready method of ascertaining the required adjustment is to multiply the number of feet, or fractions of feet, of allowance for wind by 2, and divide the product by the number of hundreds of yards in the range. The result will be the number of divisions which the windgauge must be moved.

It is useful to explain to recruits that one division on the windgauge is equivalent to one foot on the target at 200 yards,  $2\frac{1}{2}$  feet at 500 yards, and three feet at 600 yards, or half the initial figure of the range at which firing is to take place. This will be easily remembered by recruits.

The divisions on the windgauge of the Mk. III. and IV. Rifle are divided into six parts, each indicated by a spring click. Those using these rifles should remember that each click gives *one inch* on the target per 100 yards of range.

## SECOND OR ADVANCED STAGE.

The object of the instructor in this stage is to retain the *accuracy*, and introduce *quickness* of aim.

Figure targets replace the elementary aiming targets and the distance is increased up to 600 yards.

### *Accuracy of Aim.*

The instructor shows a correct aim, after which those under instruction practice laying a correct aim until proficient.

### *Elevation Table.*

The next step is to teach men the practical use of the elevation table given on the next page, and care should be taken to impress upon them, that the fine adjustment and windgauge should be regarded as artificial aids to shooting, and of little practical value.



The limited exposure of targets on service will not admit of fine calculations on the fine adjustment, therefore the following elevation table is recommended as more practical.

### ELEVATION TABLE

For Marks VI. and VII. Ammunition.  
Shewing approximate rises on a vertical target obtained by raising the leaf of the backsight.

Distance in Yards		Elevation	
Range.	Adjustment of Leaf.	Rise on Target.	
		Mark VI.	Mark VII.
200 yds.	From 200 to 300 yds	1 foot.	6 ins.
300 "	" 300 " 400 "	2 feet.	1ft. 0in.
400 "	" 400 " 500 "	3 "	1ft. 8ins.
500 "	" 500 " 600 "	4 "	2ft. 6ins.
600 "	" 600 " 700 "	5 "	3ft. 6ins.

(An adjustment of 50 yards at any given range gives a rise approximately half of that shewn in the right hand column.)

### *Aiming off for Wind.*

This is a slight progression on the elementary practice in aiming off given in the first stage.

The effect of various winds particularly at 500 and 300 yards is explained, and the unit of 1 foot shown at various distances up to 600 yards.

Practice is next given in aiming off, judging feet at actual distances, and also judging the allowance necessary for various winds. The correct point of aim is shown by fatiguemen with marking discs.

As proficiency is gained the recruit should be taught to make deflection allowance with reference to the breadth of the actual target, the full-length figure target being rather less than two feet wide. This is by far the most practical method, because

it helps the soldier to overcome the difficulty of judging the lateral distance at the target. Such practices should be limited to 600 yards, but in addition there must be practice in aiming off at all ranges according to orders, as explained in the final stage (page 64).

*Accuracy and Rapidity of Aim.*

Develop rapidity of aim by constant practice with the aiming disc.

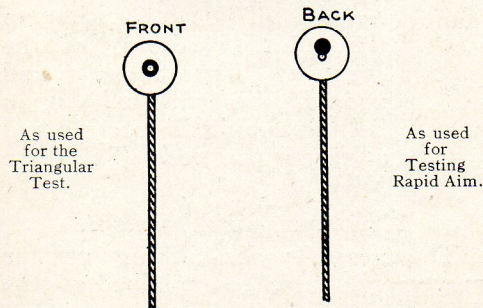
This is the basis of good snap shooting; the rapidity of aim should be increased gradually, the instructor taking care that faults of aiming and trigger pressing are not acquired.

Men should be taught at this stage to discriminate between "Snap Shooting," i.e., firing one rapidly aimed shot, and "Rapid Fire," i.e., firing a series of shots combining rapidity with accuracy.

In the former, the soldier is trained until he can raise the rifle to the shoulder and fire a well-aimed shot in four seconds.

When rapid fire is ordered, every man fires at his own best rate, consistent with accuracy.

AIMING DISC.



During this training with the aiming disc, the instructor



should be not more than one pace from the muzzle of the rifle. He should insist upon a slight pause of steadiness immediately before and after the trigger is pressed, and *the recruit should be ordered to declare the point of his aim immediately on pressing the trigger.* This declaration of the point of aim is of the greatest importance, and should be insisted upon both at aiming instruction and at target practice. (See Plate VI.)

*Aiming off for Movement.*

The necessity for aiming off for movement should be explained at this stage, and the mechanical movement of the rifle taught at short range, under 100 yards.



PLATE VIII.

Using the aiming disc to test *rapidity* of aim.

The aim corrector may be used with advantage during this instruction.

In aiming at crossing targets the main points requiring emphasis are :—

- (1) That the aim is first directed on the target.
- (2) The aim is then carried in advance of the target.
- (3) That the rifle is kept on the swing until fired.

The distance to which aim should be carried in advance of the target will vary according to the range, rate of movement, and direction of the movement.

The following table forms a rough guide up to 500 yards :—

For a man walking aim about 1 foot in front per 100 yards of range.

For a man doubling aim about 2 feet in front per 100 yards of range.

For a horseman trotting aim about 3 feet in front per 100 yards of range.

For a horseman galloping aim about 4 feet in front per 100 yards of range.

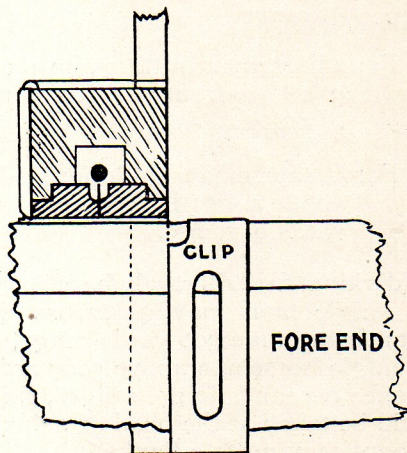
Individual fire will rarely be effective at a single man moving across the front at more than 300 yards range, or at a single horseman above 500 yards. At effective and long ranges, aim should be taken at the head of a body of troops moving to a flank.



## THE AIM CORRECTOR

Used to test Trigger Pressing and  
Power of aiming off for movement.

PLATE IX.



## THIRD, or FINAL STAGE.

Object—To retain Accuracy and quickness of aim at difficult and service targets at all ranges.

### Accuracy of Aim.

This is first practised at Silhouette figure targets, then at men in Service positions up to 600 yards.

Aiming off for wind is also further practised at the same class of targets, followed by the test as laid down in Musketry Regulations, para 299, VII.

In testing proficiency in aiming off for wind, one foot of error only will be allowed; the recruit being ordered to lay a rifle on a point some number of feet (not exceeding 6) to the right or left of a fatigued man.

### Aiming at Ground.

It is recognised that on Service the aiming point will often consist of a rock, bush, or feature of ground. Steps are therefore taken at this stage, to train men to aim at natural objects up to 600 yards.

The next step in this direction is to exercise men in marking down an enemy aiming at the ground.

This training is given as follows :—

A few fatiguemen are given rifles and blank ammunition, and posted under cover, at various places, at ranges between 200 and 600 yards. Cause each man, by signal, to expose himself for a few seconds, fire a blank cartridge, and disappear again. This should be repeated five or six times, during which the recruit should :—

- (a) Locate (first by sound, then by sight) the position of the firer.
- (b) Judge the distance and wind allowance, then, when the fatiguer has finished firing, set the sights, and aim from aiming rests at the ground supposed to be occupied.

When all the men have aimed, they should be made to stand clear of the rests. The fatiguemen should be directed to stand up, when the instructor should check each man's aim and point out errors. The range should be ascertained by the Mekometer and made known to the men. The above should be repeated until all the fatiguemen have been exposed.

The above training which combines improvement of eyesight, judging distance, and aiming at natural features,



must be progressively carried out. The exposures of the fatiguemen at the commencement should be about six seconds, and as the men become proficient reduced to four seconds ; similarly the distances should be gradually increased from 200 to 600 yards.

Preliminary arrangements with the fatiguemen are necessary, so that they each fire when required ; lie in perfect concealment when not firing, and particularly to ensure their reappearance at exactly the same place from which they fired during the exposures.

This training may be followed by giving men practice in aiming at ground described verbally.

#### Accuracy and Rapidity of Aim.

The next stage of instruction in snap shooting should be given at

vanishing targets, or fatiguemen appearing for a few seconds from cover.

Two squads may be usefully practised in snap shooting at each other.

Such training must be progressive, the length of exposures being gradually reduced from six to four seconds.

During this training the instructor emphasises the necessity for :—

- (1) Constant watch of the front.
- (2) Quickness of aim.
- (3) Instant reloading after each shot.

#### Aiming off for Movement.

This consists in snap shooting at moving targets at actual distances, and is carried out as for accuracy and rapidity of aim. The fatigue men are

instructed to move across the front, first in quick time, then at the double.

The aim corrector should be used to check when aim is taken at slow moving targets.

When proficient, the test of elementary training as described in Musketry Regulations, para. 299, VII. is applied.

#### Aiming up and down.

This practice may be given either by using fatiguemen at various ranges, or by exercising the men of two squads against each other, one taking up a defensive position and snap shooting, while the men of another squad advance by short sharp rushes.

In aiming up and down, the aim should be directed at a point not more than three feet above or below the six

o'clock line. The golden rule in aiming at such targets is to anticipate movement, and rapidly adjust sights for every alteration in the range, so that aim may be taken at the lowest part of the mark, care being taken not to be caught adjusting sights or with an empty rifle when the enemy advance.

#### Aiming at Ground over 600 yards (Recognition).

This is the training indicated in para. 211, Musketry Regulations, in which men are practised in recognition of ill-defined targets described by word of mouth. When the aiming point has been described, the men lay their rifles on the point recognised from aiming rests.

The test for recognition of aiming



points (Musketry Regulations 299, II.) follows the above instruction. The men to be tested each have an aiming rest. A non-commissioned officer from behind them describes some difficult aiming point, such as a point in a hedge or area of open ground. The men lay their rifles on the point which they recognise from the description. Four points should be described for every man tested.

Aiming off for wind over 600 yards  
(Recognition).

In this exercise men are practised in carrying out instructions accurately. It is important that officers and N.C.O's. have a thorough knowledge of the wind table on page 66 to assist them to make the necessary allowance for wind when giving fire orders.

The targets used in this phase of training may consist of screens representing a formed body of the enemy or standing figures placed to simulate a section of fours, etc.

The point of aim may be indicated:—

1. With reference to the breadth of the target.
2. With reference to intervals in a formation.
3. By use of an auxiliary aiming point.
4. (If the above are impossible) in yards or feet.

Fatiguemen are signalled to show the correct point of aim and the alignment of rifles checked.

## WIND TABLE.

Right angle Winds.

Range (yards).	Allowances for		
	Mild	Fresh	Strong
500	2 feet	4 feet	6 feet
1,000	3 yards	6 yards	9 yards
1,500	6 "	12 "	18 "
2,000	12 "	24 "	36 "

For oblique winds—halve the allowance for right-angle winds beyond 500 yards range.

For head and rear winds.—Ignore within 1,000 yards; between 1,000 yards and 1,500 yards allow 50 yards plus or minus elevation

Long Range Sights.

These should be shown but not taught in Stage I.

The use of the long range sights is taught on the principles given for back and foresights as far as they apply. The position of the aiming eye should be specially noted *i.e. one inch behind the small*. If the eye is kept in line with the heel of the butt, the field of view is too small and the sights and mark can only be aligned with the greatest difficulty.

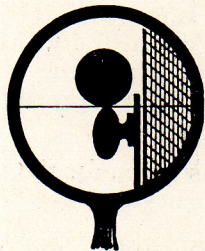
The reasons given for the use of the long range sights are :—

1. Less strain on the neck muscles than high back-sight elevations.
2. Greater rapidity of aim at indistinct objects.



3. Less tiring to the eye, as only foresight and aiming mark have to be focussed. The eye looks through an aperture sight, but at an open backsight.

Illustrating the correct aim as taken with the Long Range Sights.



## FIRING INSTRUCTION.

### INSTRUCTORS.

In applying the following instructions, the squad instructor — while allowing no slackness in performing the preliminary motions of any firing position—should not unduly labour such details, but should rather devote his energies to the essential points. His first object should be to train the men of his squad to *quickly* and *accurately* assume any firing position. Such faults as—

*Undue Constraint ;*

*Finger on the trigger in the loading position ;*

*Lack of grip with either hand ;*

*Eye near the cocking piece ;*

*Contact of face and right hand or neglect to use the safety catch should on no account be overlooked.*

Men learn the firing positions chiefly from illustration; the instructor should, therefore, strive to teach by force of example rather than by word of mouth.

Brief explanation accompanied by demonstration with the rifle, on the part of the instructor, followed by practice in assuming the position by the men (working the muscles and reasoning powers of the men alternately), should be the method employed throughout firing instruction.

Before commencing these exercises the squad should be assembled in a semi-circle at two paces interval around the instructor, who will explain when the position he is about to teach would be used; at the same time assuming the correct position. By assuming the complete motions the men in the squad see what they have to attain. Then he will point out a

mark for the whole of the squad to aim at, directing each man to face it; this will assist the instructor in correcting inaccurate positions.

During the preliminary exercises words of command are seldom necessary, the men should be ordered to carry out the motions independently immediately after explanation by the instructor.

The essential points of the firing positions enumerated on page 73 must be insisted on from the beginning, as the foundation of fire discipline.

The keenest attention of the instructor is necessary to ensure that the rules regarding the safety catch are observed. When drawing back the safety catch with the thumb men sometimes place the forefinger on the trigger. This must be watched and the men should be encouraged to use the forefinger to draw back the safety catch.



The regulation positions may be varied if physical disability renders them unsuitable in any case, but awkwardness in the first stages of instruction should not be accepted as an indication that the regulation position requires modification.

A careful study of Plates 19 to 33, Musketry Regulations, will be found helpful in applying the following instructions.

Dummy cartridges should always be used, except in muscle exercises, to save time but must be carefully inspected.

Firing instruction should proceed simultaneously with aiming instruction.

A progressive sequence of instruction is essential, and this sequence must fit in with stages reached in other branches of instruction, *e.g.*, men

should not be allowed to snap till they have learnt to aim correctly, press the trigger, and assume correct firing positions.

#### SEQUENCE OF INSTRUCTION IN FIRING.

1. Trigger pressing.
2. Positions in the open.
 

Standing	}	Muscle Exercises to proceed simultaneously.
Lying		
Kneeling		
Sitting		
3. Positions behind cover.
  - (a) Artificial cover.
  - (b) Natural cover.
4. Rapid loading. M.R. 261.
5. Rapid firing. M.R. 260.

The targets used should be similar to those used in aiming instruction according to progress made.

## TRIGGER PRESSING.

1. Trigger pressing should be regarded as the most important part of firing instruction.

The instructor must ensure that the recruit thoroughly understands the correct way of pressing the trigger before he is allowed to practise snapping. Several lessons should be given before he is permitted to bring the rifle to the aiming position.

2. Trigger pressing requires most careful individual instruction, and it is recommended that the first few lessons should take place in the barrack room, the rifle being rested on sandbags or in a Ball aiming rest. During these lessons the instructor should impress upon the mind of every recruit the necessity for determination and strong personal effort so that the aim may not be disturbed.

3. The recruit should strive to know the exact pressure required to release the striker of his own rifle, and apply the final pressure in the fraction of time that the sights are on the mark. This perfect trigger control is only acquired by constant daily snapping practice, during which thought must be concentrated on the trigger pressure, and the firer must be determined not to snatch or pull.

4. The best aids to securing a perfectly smooth let off are :—

- (i.) To restrain the breathing while taking the final pressure.
- (ii.) Declaration of the point of aim at the instant of pressing. By this means a man checks his own let off, noting whether the aim is disturbed at the moment of snapping. The firer should always declare



the direction of his aim at the moment of discharge before removing the rifle from the shoulder.

- (iii.) Retaining the aim on the mark after pressing.
- (iv.) Constant snapping practice, to train the eye, brain and forefinger to work in harmony.

## METHOD OF INSTRUCTION IN TRIGGER PRESSING.

1. The instructor should first take steps to ensure that each man can move his trigger finger independently of the remainder of the hand and arm. It will be found that some men require muscle exercise for the forefinger in order to gain this power.

2. Explain that as the trigger has a double pull-off, two distinct pressures are necessary to fire the rifle. The first pressure should be taken immediately the rifle has been brought into the aiming position; the second when the sights are aligned on the mark, the main object being to release the cocking piece without disturbing the aim. The double pull-off facilitates this, because the firer can take the second pressure readily and without undue movement of the rifle.

3. The direction of the pull-off should be next explained, in order that the trigger may be pressed diagonally across the small of the butt.

4. The reason for using the forefinger in preference to the second is noted. The forefinger is nearest the guard, has a quicker action, and is more readily placed on the trigger.

The first joint is used because it is more sensitive than higher up the finger.

### PLATE X.

Shewing correct position of hand whilst pressing trigger.

Fig. 1.

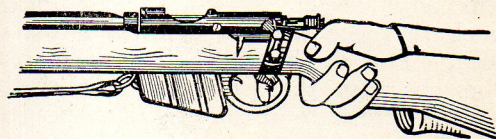
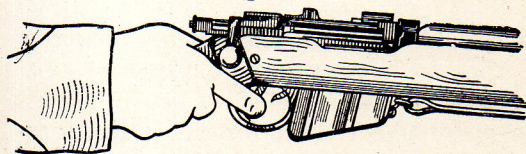


Fig. 2.



5. The position of the finger on the trigger should next be illustrated, the first joint being hooked around the lowest part of the trigger. This gives

greater leverage, and consequently less pressure is required than at the top of the trigger near the axis pin.

6. Emphasise the necessity for a firm grip of the remaining fingers and thumb on the small of the butt. This prevents jerking and pulling. (See Plate X.)

7. Illustrate the correct method of applying the pressure between the forefinger and thumb, explaining the necessity for restraining the breath while taking the second pressure.

### HAND OVER HAND METHOD.

The instructor should now demonstrate what all this means, by placing the rifle on a sandbag or rest, and causing each man to place his hand around the small with the forefinger on the trigger, without exercising pressure; the instructor then places his hand over that of the recruit,



and shews the correct method of pressing the trigger, particularly drawing attention to the pressure exerted by the thumb. The recruit should then be made to perform the motions over the instructor's hand, to ascertain if he has understood the instructions given.

When all the men have passed this test they should be made to practise pressing the trigger when in the aiming position, the instructor warning them to retain the aim on the mark each time after doing so, and so detect for themselves if the aim has been disturbed by improper pressing.

8. The instructor should test progress in trigger pressing from time to time with the aim corrector, and if necessary further lessons will be given. Grouping practices on the sub-target machine or 25 yards range form the best tests of let-off and serve to develop steadiness until range practice is begun.

## THE STANDING POSITION.

### BRIEF SEQUENCE OF INSTRUCTION.

Explain when position is used.

Point out target.

Show complete firing position.

Teach position in easy stages.

- (1) Loading position shown.  
Method of reaching position.  
Practice.  
Faults corrected.  
Reasons for position.
- (2) Method of loading shown.  
Imitated.  
Method of unloading shown.  
Practice.  
Faults corrected.
- (3) Method of adjusting sights shown.

Practice.

Sights checked, faults corrected.

Test of elementary training for  
Sight Setting.

- (4) Aiming Position shown.

Method of reaching position.

Practice.

Faults checked.

Reasons for position.

Test of Elementary training for  
firing positions.

- (5) Completed firing position  
shown.

Point of aim declared.

Practice.

Test of Elementary training for  
trigger - pressing with aim  
corrector or Sub-Target.

## DETAILED METHOD OF INSTRUCTION.

The instructor illustrates the completed motions, to allow the recruits to see the whole exercise they are about to be taught, at the same time explaining that this position will be adopted on Service to fire from breastworks, high walls, and cover, such as long grass or standing corn.

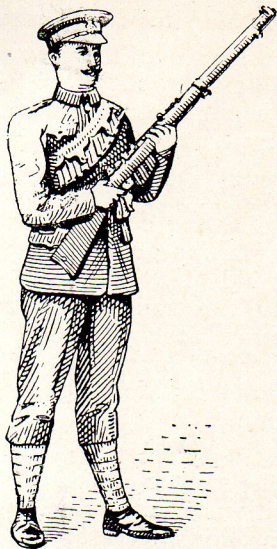
It should also be made clear that the prone position is the normal one on Service, the standing position being taught first because it is a convenient position for elementary instruction.

### LOADING.

I.—The instructor assumes the loading position, briefly drawing attention to the motions necessary to arrive at the correct position, *i.e.*, the turning of the body, the position of the left foot, the position of the rifle, and how



PLATE XI.  
Loading Position—Standing.



POINTS TO BE NOTED.

1. Muzzle pointing upwards and directed towards the target.
2. Left hand gripping stock firmly at point of balance.
3. Left arm against body for support when re-loading.
4. Right hand gripping small of butt, forefinger behind guard.
5. Small of butt well forward to give free action in coming to aiming position.
6. Body erect, and firm grip of ground.
7. Eyes on the mark.

held. Without further explanation the men are now ordered to assume the position and to continue to practise until proficient. (While the men are performing this and all subsequent motions, the instructor should closely scrutinise each man's position and correct errors, his normal position being about 5 paces from the recruit and to his right front. It should not be necessary to *touch* the man who assumes a faulty position, example and verbal instruction should suffice). Those men who are unable to assume the position with even a fair standard of accuracy should be instructed in each of the motions separately. This principle of breaking up the instruction into very easy stages should always be followed when dealing with the backward men of a squad. When fairly proficient, order a rest, and explain the reasons for the motions performed.

- (a) The object of turning half right is to enable the firer to bring his left elbow under the rifle when aiming, for support.
- (b) The left foot is placed to the left front, to enable the firer to get a firm grip of the ground and so resist the shock of recoil.

The following points with regard to the position of the rifle, etc., should also be briefly explained.

- (a) The muzzle pointing upwards—for safety, and convenience in loading and adjusting sights; this also admits of the rifle being quickly brought to the aiming position.
- (b) The position of the left-hand—for control at the point of balance.

- (c) Position of the left elbow—for support when loading.
- (d) The forward position of the small of the butt—to facilitate rapidity in loading and quickly coming to the aiming position.

Order further practice in assuming the loading position until thoroughly proficient.

During the rest which follows, catechise the squad freely on the points explained during the previous rest. During this stage warn the men against carrying the right shoulder too much to the rear in assuming the loading position, as this leads to the following serious faults when aiming:—

- (a) Placing the butt on the bicep instead of in the hollow of the shoulder, results in gun shyness



- (b) The eye is brought too near the cocking piece, causing blurred vision and consequently inaccurate aim.
- (c) The nose and mouth are brought near to the fingers and thumb of the right hand, resulting in a blow on each round being fired, causing gun shyness.

The instructor should watch the tendency to place the finger on the trigger; this is a common fault when in the loading position.

II.—Illustrate the correct method of loading, pointing out that jams frequently occur through :—

- (a) Failing to push the last cartridge out of the charger into the magazine.
- (b) On finding the bolt does not go home freely, men draw it back

for an extra push, thus engaging the bolt head behind the rim of the next cartridge in the magazine.

- (c) Failing to draw back the bolt to its fullest extent.
- (d) The pouch from which the charger is drawn must always be buttoned up.

The unloading motions should now be illustrated so that the men may practise loading and unloading independently while the instructor is correcting each individual.

During this stage the instructor should remember :—

- (a) To always use dummy cartridges, otherwise men will handle chargers clumsily, causing delay, consequently reducing the rate of fire. If dummy

cartridges are not used men only draw back the bolt just far enough to compress the mainspring, and so form bad habits for firing with live cartridges.

- (b) That better leverage is obtained if the forefinger of the right hand is placed under the cut-off when loading with a charger.
- (c) That eyes taken off the mark while opening and closing the breech means loss of time in rapid fire.
- (d) To be an expert himself in rapid loading, and give frequent demonstrations to stimulate the men.

Gradually develop in the men rapidity in loading and smart working of the bolt.

### *The use of the Safety Catch and Cut-off.*

Between the intervals of loading and unloading, opportunity should be taken to explain the use of the safety catch and cut-off. Neglect to apply the safety catch should always be regarded seriously. The soldier being instructed to apply it before movement whenever the rifle is loaded, or the magazine charged.

The use of the cut-off is to be confined to occasions when they are not actually engaged with the enemy, when it may be employed for the purpose of charging the magazine without inserting a cartridge in the chamber, or to unload the rifle while retaining cartridges in the magazine. It is never to be used to enable the rifle to be used as a single loader, and is not to supersede the use of the safety catch.



In the case of rifles which have no safety catches, the cut-off will be pressed in and the rifle unloaded on all occasions when the safety catch is ordered to be applied, except in an advance in extended order, when these rifles may be carried during movement at the "slope" instead of being unloaded.

The object of loading the rifle with one charger only requires explanation. Although the magazine will hold two charges of five cartridges each, in ordinary circumstances the rifle is loaded with one only. Under excitement, men cannot be expected to remember how many cartridges are left in the magazine, it is therefore essential that they should have the power of adding another charge at any time, should necessity demand. This advantage would be sacrificed if at

peace training men were taught to load with more than one charger at a time.

### RAPID LOADING.

Much of the slowness in loading with chargers may be overcome by exercising men for spells of five or ten minutes in loading and unloading with dummy cartridges. They should be impressed with the necessity for extreme accuracy in all details, such as quick, clean manipulation of the bolt, using the finger and thumb instead of the palm of the hand, clean sweeping of the cartridges out of the charger in one motion, etc.

When five rounds have been inserted in the magazine, the bolt should be closed and turned over, and the rifle will be at once unloaded and another charger inserted similarly.

Such practice materially increases the rate of fire with which a man can fire, leaving him comparatively cool, and with time to aim with accuracy. Rapid loading should be practised in all positions, but especially in the prone position.

The standard of proficiency is that 6 chargers should be loaded and unloaded in 1 minute.

#### ADJUSTMENT OF SIGHTS.

III.—The instructor assumes the loading position and shews how the sights are adjusted, after which the men are ordered to set their sights for some particular range, remaining in the loading position until the adjustment has been verified by the instructor, then they should lower the slide, centre the windgauge and order arms.

This practice is continued until the men adjust quickly and accurately in the following sequence :—

- (a) From 200 to 600 yards.
- (b) From 600 to 1,500 yards.
- (c) Introducing the windgauge with the range.
- (d) The dial sight.

During this stage warn the men :—

- (a) To see that the slide is firmly fixed each time.
- (b) To avoid unnecessary movement of the rifle or body when adjusting the sights.
- (c) Of the danger of putting the windgauge on the wrong side.
- (d) That the V or U must always be moved in the direction *from* which the wind is blowing : To the right for wind blowing from the right, and *vice versa*.



### RAPID ADJUSTMENT OF SIGHTS.

The rapid adjustment of the sight is essential for good snapshooting, and instructors should frequently test their squads in setting their sights rapidly and accurately.

The standard time is three seconds for elevation only (magazine Lee-Enfield rifle, five seconds), an extra five seconds being allowed if deflection is ordered.

Excellent practice may be given if instructors give orders for aiming or firing at definite targets, but without naming the range, and require their squads to adjust their sights before they bring the rifle to the shoulder. The careful adjustment of sights will thus become instinctive.

Adjustment of sights may also be practised in connection with movement of the firer or the target. Men should be instructed that when there is time, the sights will be adjusted for every alteration in the range, and aim will be taken at the lowest part of the mark, but frequent small changes of sighting lead as a rule to loss of fire effect, and may be avoided by aiming up or down.

### TO AIM AND FIRE.

IV.—It is important that all the points mentioned in para. 249, Musketry Regulations, Part I., should become automatic from habit. Occasionally, when a recruit is very awkward, it may be necessary to use stages in teaching him to aim and fire, but this should be quite exceptional. Before firing, the rifle may be brought a few times to the

loading and again to the firing position, to enable the instructor to satisfy himself as to the correct action without keeping the men too long at the aim.

The instructor will show, after loading, how the rifle is held in the shoulder, at the same time pointing out very briefly :—

- (a) The position of the butt.
- (b) The position of the left hand and elbow.
- (c) The position of the right elbow.
- (d) The position of the finger on trigger and grip of right hand.
- (e) The position of the aiming eye and cheek on butt.
- (f) Declaration of point of aim.

(a) The position of the butt.

The butt must always be placed in the same position in the shoulder, otherwise, owing to the point of support changing, the shots will vary, *i.e.*, if placed too high, high shots will result and *vice versâ*.

(b) The position of the left hand and elbow.

The butt will be held more firmly in the shoulder if the hand is held well in front of the magazine. The wrist must be kept up and the elbow brought under the rifle for support.

(c) The position of the right elbow.

If held too high or low, the sights become inclined. It should also be remembered that the hollow is formed in the shoulder for the butt by bringing this elbow well forward.



(d) The position of the finger on the trigger, and grip of remaining fingers and thumb of the right hand.

The first joint of the forefinger should be placed on the lowest part of the trigger to obtain greater leverage, and the first pressure taken immediately the butt touches the shoulder. Great care must be exercised to ensure that the forefinger is not placed on the trigger before the rifle is in contact with the shoulder.

At this point it is well to remind men that both hands must be used to press the butt in the shoulder, and that the firmer the butt is held the less will the recoil be felt.

(e) That when the aiming eye is kept well back from the cocking piece (a) the sights are more

clearly defined, (b) the less strained will be the position of the head and neck, and (c) there will be no jarring of the thumb or fingers on the face on the discharge of the rifle. This latter point is very important because of flinching and gun shyness arising once the habit is formed.

The position of the head, *i.e.*, not inclined sideways. An inclined head also results in distorted vision, and encourages a tendency to aim with inclined sights.

(f) The necessity for declaring the direction of the aim at the moment of discharge before removing the butt from the shoulder. This is most important because (1) no man

can become a good shot until he can with certainty declare the point of aim, (2) it also checks wild shooting, and (3) it gives the firer confidence in his own powers, particularly when deciding alterations of point of aim or sighting on the range. By this means the recruit checks his own let-off by noting if the aim is disturbed by improper trigger pressing.

The firing rest should be frequently employed to enable the recruit to support the rifle while the instructor corrects his position.

Now cause the men to bring the rifle to the shoulder until the above points are mastered.

After a slight pause bring the rifle to the loading position and repeat

the practice, or apply the safety catch and order arms.

During this exercise the instructor should particularly note :—

- (1) The grip of both hands. Loose holding leads to snatching the trigger, and shows lack of determination.
- (2) Contact of face and right hand.
- (3) That the first pressure is always taken immediately the butt touches the shoulder.
- (4) That the finger is removed from the trigger after firing.
- (5) Careless position of the butt in the shoulder (muscle drill is the only remedy for this fault and for No. 1.).



The best means of overcoming the habit of getting the eye too close to the cocking piece are :—

- (a) Setting the butt shoulder slightly forward.
- (b) Drawing back the chin while aiming.
- (c) Raising the butt in the shoulder.
- (d) Bringing the right elbow well forward and so placing the butt above the pectoral muscle in the chest.

A simple method of testing the correct position of the face on the butt is to order each man to draw back the bolt as far as possible with the rifle held in the aiming position. There should be about an inch clearance between the eye and cocking piece when the bolt is withdrawn to its full extent.

V.—Having been taught how to perform the motions of firing separately, the time has now come to exercise men in combining the whole of the motions. An aiming mark is given, and, on the order being given to “carry on,” the men load, adjust sights to some named distance, align the sights on the mark, restrain the breathing, and press the trigger. After a pause bring the rifle to the loading position and repeat the practice, until the five rounds are expended from the magazine, then unload and order arms.

During this exercise the instructor should follow a definite method in criticising each man's position. It is a good plan to commence at the muzzle, then taking the grip of both hands, the position of the left arm, the small of the butt, position of the body, and feet, in the order indicated.

## MUSCLE EXERCISES.

The muscle drills form the correct exercise necessary to harden those muscles used when firing, and so enable the men to stand the strain and fatigue imposed during rapid fire for long periods ; these should be practised for a few minutes at the conclusion of any musketry drill.

The utmost smartness should be exacted, this being the only part of elementary musketry training treated as a drill. These exercises make certain actions habitual, such as quickly bringing the rifle to the correct firing position, fitting the butt in the shoulder, maintaining the grip of both hands, and encouraging determination and will power.

Before commencing, the object of each practice should be explained and demonstrated.

In each practice, a conspicuous object, representing the target, should be indicated, and the rifle will invariably be thrown in approximate alignment with it. In the first and third exercises, the correct aiming position will be assumed, including taking the first pressure, bringing the cheek down on to the butt, and closing the left eye, but without actually aligning the sights.

In the second exercise, the first pressure will be taken when the right hand grasps the rifle, but the head will not be lowered, the left eye will not be closed, nor will the sights be aligned.

Dummy cartridges are not used during muscle exercises to save time.



## 1ST PRACTICE.

(To be performed with and without bayonet fixed.)

Caution :—*Muscle Exercise.*  
1st Practice.

On the command "Standing (Lying) —Load."—Bring the rifle to the loading position, and open and close the breech.

On the command "One."—Bring the rifle to the aiming position, take off the first pressure, lower the cheek on the butt, and close the left eye, but without actually aligning the sights. Return at once to the loading position, and continue the practice until the command "Unload" is given.

This practice is to accustom the arms to the strain of continually raising and lowering the rifle, and to establish that union which should exist between the butt and the shoulder.

The instructor should check any tendency to slacken the grip, faulty placing of the butt, and inaccurate position of the elbows.

## 2ND PRACTICE.

Caution :—*Muscle Exercise.*  
2nd Practice.

On the command "Standing (Lying) —Load."—Bring the rifle to the loading position, open and close the breech.

On the command "One."—Bring the rifle to the position for aiming, but without lowering the head, or closing the left eye, and take the first pressure.

On the command "Two."—Remove the right hand from the small, keeping the butt firmly pressed in the shoulder with the left hand.

On the command "Three."—Seize the small with the right hand taking the first pressure, and lower the left hand to the side.

The commands "Two" and "Three" will be given at intervals of about 10 seconds.

"Unload"—As before.

The second practice is to strengthen the grip of each hand independently: The left hand in holding the butt firmly in the shoulder, the right hand in gripping the small independently of the forefinger.

In this practice the action is cocked and the first pressure taken whenever the right hand is grasping the small; the object being to strengthen the grip on the rifle with the thumb and three fingers while leaving the first finger free to manipulate the trigger at will.

### 3RD PRACTICE.

(To be performed with and without bayonet fixed.)

Caution :—*Muscle Exercise.*

#### *3rd Practice.*

On the command "Standing (Lying) —Load."—Bring the rifle to the loading position, open and close the breech.

On the command "One."—Bring the rifle to the aiming position, take the first pressure, lower the cheek on the butt, but without actually aligning the sights.



“Unload.”—As before.

The men should be trained progressively to hold the rifle in this position until they can do so without fatigue for two minutes.

The third practice strengthens the arms in holding steadily and trains the eye in retaining the aim.

#### FIRING PRONE.

The lying position is taught and tested on the same principles as given for standing.

The instructor demonstrates the completed firing position, taking care that the oblique angle is not unduly exaggerated. Explain that this position will generally be adopted on open ground, or when firing from low cover, or from behind small rocks, trees, ant-heaps, etc.



PLATE XII. *Fig. 1.*

Illustrating the comparative vulnerability of the firer in the prone position:—

*Fig. I* —When lying obliquely to the line of fire.

„ *II.* —When lying in prolongation of the line of fire.





PLATE XII. Fig. 2.

*Note.*—When lying straight behind the rifle a certain amount of fire effect is sacrificed owing to constraint, but the target surface exposed is considerably reduced.

### LOADING.

The men should be taught to lie down with the arms in such a position that aim can at once be taken if required without moving the elbows, the reason being to habituate men to service conditions, when the rifle is always loaded, and fire frequently opened immediately the prone position has been assumed.

I. The instructor deliberately assumes the loading position, explaining briefly :—

- (a) That the firer lies obliquely to the line of fire to enable him to bring the left elbow under the rifle for support when aiming.
- (b) That the left shoulder is well forward and left arm extended to the front so that the rifle may be quickly brought to the aiming position.



- (c) The legs are separated to give a firmer position.

Then cause the men to perform the above motions, until a comfortable position is rapidly assumed.

It is of no use to move a man's legs or rifle to correct a faulty position; always cause him to rise and repeat the whole of the motions, paying particular attention to the preliminary actions.

II. The instructor shews how to load and unload, then proceeds as when standing.

The points mentioned on pages 83 to 85 with reference to loading in the standing position are also applicable to the prone position.

#### ADJUSTING THE SIGHTS.

Proceed as laid down for Standing Position. The essential points in sight-setting are that the sight must

be set quickly and accurately, and with as little movement as possible.

Men often raise the body unnecessarily instead of drawing back the rifle. This should be watched for and immediately checked.

The latest marks of the S.M.L.E. admit of the sight being adjusted with the minimum movement. The right hand is rested on the ground by the side of the small, and the rifle drawn back with the left hand, the stud pressed with the left thumb, and the rifle pushed forward into the loading position. This motion may be performed with extreme quickness and neatness after a little practice. With other marks the rifle is drawn back *through* the left hand until the lines on the leaf can be clearly seen, and after adjustment, pushed forward to a position ready to assume the aiming position.

Much practice is required to reach the proficiency standard of 3 and 5 seconds respectively (8 seconds when deflection is ordered). On all occasions the slide should be tested to see that it is firmly fixed at the correct distance.

### TO AIM AND FIRE.

I. The instructor will lie down and load, and demonstrate how bringing the left elbow forward clears the butt from the shoulder, then bring the butt to the shoulder, illustrating how the body is raised on the elbows, and slightly retired, to obtain elevation, and refer very briefly to the points mentioned in the aiming position standing.

In holding the rifle in this position it will be found that the nearer the arms are brought to the perpendicular the less will be the strain on the muscles.

Now cause the men to practise until they can quickly assume a correct and comfortable position.

As the common fault of getting the eye too near the cocking piece is one of the chief causes of bad shooting, every instructor should strive to find out the best means of keeping the eye back when firing in this position, so as to secure the best results from the men of various build. The following have been found to be practical :—

- (a) To lie less obliquely, and thereby advance the right shoulder.
- (b) To raise the body well off the ground by means of the elbows.
- (c) Drawing back the chin along the butt.
- (d) Placing the butt closer in the chest, and slightly higher than usual.



### THE SITTING POSITION.

This position is most suitable when on ground falling at a steep slope. It is essential that the training should take place on suitable ground. The necessity of turning half-right and keeping the right shoulder well back requires to be emphasised. Attention to this point will ensure a direct support for the left arm on the thigh, and will also facilitate obtaining the necessary depression for firing down a steep slope.

In the aiming position both elbows should be rested whenever possible for steadiness. To obtain elevation the left forearm is raised up the thigh towards the knee.

### THE KNEELING POSITION.

The kneeling position is used mainly when firing from continuous cover,

such as a low wall, bank, or hedge, or in long grass, crops, etc., which would obstruct the line of sight if the prone position were adopted.

The essential points to be observed by the instructor are as follows:—

- (1) That the knee is in advance of the left heel. This renders forward movement easy, and also enables the firer to get close to cover, such as a wall.
- (2) That the right knee is pointed to the right front. This keeps the right shoulder forward.
- (3) The left leg, hand, and arm, and the right shoulder, should be in the same vertical plane for steadiness, when firing in the open.



PLATE XIII.

Kneeling Behind Cover. (*Front View.*)

Illustrating the minimum exposure when firing.

*Note.*—The grip of the left hand is maintained while the Rifle is rested.



PLATE XIV.

Kneeling Behind Cover. (*Side View.*)

Illustrating the important principle of watching the ground in front while re-loading.

In this position the muzzle should be directed in such a manner that a bullet fired accidentally will clear the cover.



The soldier may kneel on the right knee or on both knees.

It is not compulsory to support the body on the right heel, but in doing so great steadiness is assured. When kneeling on both knees the body may rest on both heels, or be kept upright to suit the height of the cover, the elbows in both instances being unsupported by the body.

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### FIRING FROM COVER.

The instructor should now devote some part of each drill to training the men to fire from cover. This is probably the most important part of the recruit's training, and the instructor must have at his finger ends the instructions for the use of ground as laid down in "Infantry Training."

### *Artificial Cover.*

All positions adapted to various forms of cover.

Taught and tested as in the open.

Correct uses of cover explained.

Each kind of cover used discussed.

From the commencement recruits should be taught to regard cover as a means of increasing fire effect and not solely for protection.

In teaching the use of cover, the instructor should explain that the first principle is to adapt the position to it that the rifle can be fired with the minimum of exposure. In other words to adapt themselves to the cover and not the cover to the firer. He should then state the advantages and disadvantages of various kinds of cover, and practically shew how each can best be utilised.

The men observe his position from behind, noting how it is modified to suit the cover, and afterwards from some 20 or 30 yards in front, while the instructor emphasises the danger of movement and of undue exposure. Each man is then directed to take cover, and his actions and position criticised by the instructor from the enemy's point of view as well as from behind.

Attention should be drawn to care being taken to avoid the slide being altered on the sight through the stud pressing against cover. This is more important than keeping the bead of the dial sight clear, for if undue emphasis is laid upon the latter, it will often entail full advantage of the cover not being taken.

To be considered efficient, cover must fulfil the following conditions:—

- (1) Afford a good view of the ground to the front.

- (2) Permit of the free use of the rifle.
- (3) Give concealment to the firer.
- (4) Provide protection against the enemy's fire.

It is worth noting that protection is the last point dealt with.

Whenever possible, field of fire, concealment, protection, and a rest for the rifle should be combined.

### *Natural Cover.*

Use of folds in ground and cover from view demonstrated.

Practice in using suitable positions for cover.

The value of cover from view and the means of concealment afforded by small folds in the ground, a few tufts of grass, etc., should be illustrated, and the tendency to attract attention by exaggerated movements of the



head, arms, or rifle in loading and aiming, should be pointed out and checked.

Cover from view is most important because the bulk of fire on service is directed at the most visible target. The slightest fold of ground conceals a man, therefore the soldier should not despise or ignore these small depressions.

Any cover from view which obscures the enemy should be looked upon as a covered line of approach to the next fire position.

The main points to be noted by instructors may be summarised as follows :—

- (1) There must be no unnecessary movement. Movement gives the position away.

- (2) The firer must not be so close to the cover as to hamper the free use of his rifle.
- (3) The rifle must be gripped at the proper place, and the grip maintained.
- (4) The back of the hand should not be rested on the top when firing over, nor against the side when firing round cover.
- (5) Behind objects affording a restricted amount of cover, the body and legs should be parallel to the line of fire, if the oblique position would increase vulnerability.
- (6) The rifle should be rested. A man can shoot with greater accuracy, rapidity, and with less fatigue from a rest. This is especially the case if he is shaky from a rapid or physical and mental strain.



- (7) The ground in front must be watched during preparation for firing, therefore men must be trained to load their rifles, keeping the eyes on the mark.

When the preliminary exercises have been concluded, there will be ample opportunity for advanced exercises, as the ingenuity of the instructor may suggest, *e.g.* (a) Make the men skirmish individually over a piece of ground, the remainder criticising, (b) Divide the squad into two groups, cause one group to make cover, and place themselves in a defensive position, then cause the other group to skirmish towards them; invite criticism from each group at the conclusion, etc., etc.

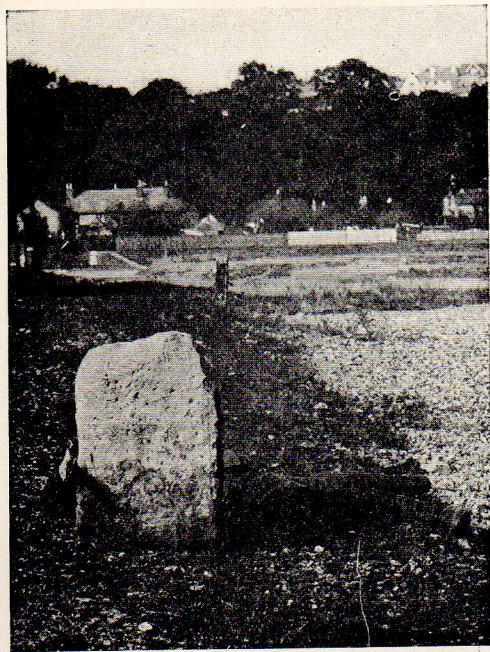


PLATE XV. Fig. 1.—INCORRECT POSITION.  
Illustrating the incorrect and correct methods of firing from cover, such as a boulder, tree, etc.

When firing *round* cover, the rifle should always be rested against the side of the cover, for steadiness and minimum of exposure.



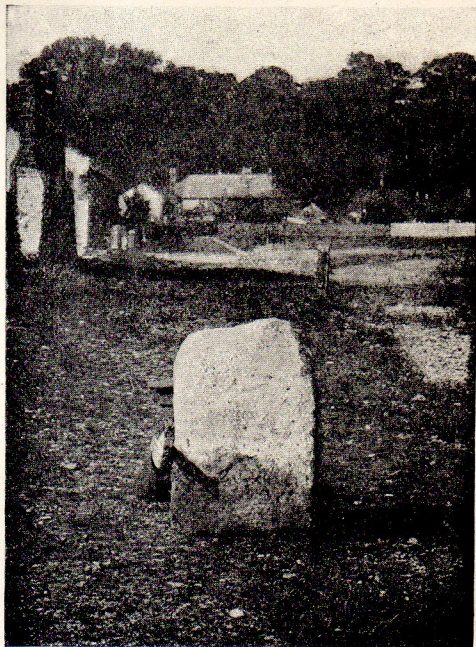


PLATE XV. *Fig. 2.*—CORRECT POSITION.

Firing obliquely from cover, is a practical lesson needing special emphasis by instructors, for on service occasions frequently arise for employing this means of increasing fire effect while preserving complete invisibility from the front.

It is important that men lying in the open should lie low, while still watching the ground in front; they should practise loading and firing with the least possible movement, for movement attracts fire. There is no need to rest on the elbows except in rapid fire. (See Plate XVI.)

In all cases of firing from cover the instructor should encourage the men to practise rapid loading while keeping the butt in the shoulder; by this means the rate of fire may be considerably increased and movement is reduced to a minimum.





PLATE XVI. *Fig. 1 (Front View).*  
The correct and incorrect methods of utilising a fold of ground.

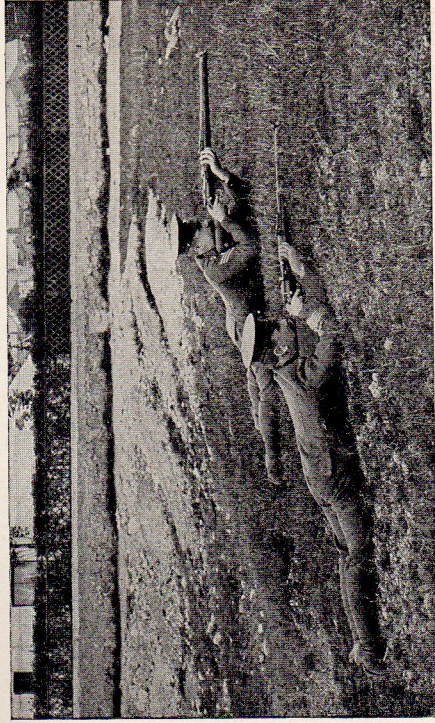


PLATE XVI. *Fig. 2 (Side View).*  
Utilising a fold of ground.



## RAPID FIRE TRAINING.

When he is able to aim and fire steadily in all positions and from various classes of cover, the soldier should be exercised in combining rapid loading with the greatest rapidity of aim consistent with accuracy.

Every man should be able to fire from 12 to 15 rounds per minute without serious loss of accuracy. The highest rate of fire consistent with accuracy delivered by any one man is termed his best rate of fire. This rate will vary in individual soldiers in proportion to the amount of training carried out with dummy cartridges in his leisure hours, but an opportunity is given to every man to find out for himself his own best rate of fire in practice 22, Table B.

In training for rapid firing the rate of fire should be increased gradually so that faults in aiming and trigger pressing are not acquired. Accuracy of aim and let-off are all important, therefore the trigger should be pressed with the forefinger only.

Determination and will power, coolness of mind and hand, are the essential qualities for good rapid fire. The first is shown in the grip maintained on the rifle and the ability of quickly re-aligning the sights on the mark after recoil; and the latter is displayed in quick, clean manipulation of the bolt and charger, combined with fixed attention to the number of rounds fired in order to know the exact time to reload the rifle; and a determination not to hurry the aim, thus sacrificing accuracy for rapidity.



The following forms of training require special attention and assiduous practice, to attain the highest proficiency in rapid fire :—

1. Loading and unloading with dummy cartridges.
2. Smart manipulation of the bolt with the butt of the rifle kept in the shoulder.
3. Constant practice with the aiming disc, to develop rapidity of aim.
4. Timed snapping practice, short bursts of fire only, to acquire quick and smooth let-off.
5. Muscle exercises.

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